

Cross Bay Link, Tseung Kwan O - Main Bridge and Associated Works

China Road and Bridge Corporation

ORGANISATIONS TO BE CREDITED

- Civil Engineering and Development Department
- AECOM Asia Co. Ltd.
- China Road and Bridge Corporation
- Shanghai Zhenhua Heavy Industries Co., Ltd. (ZPMC)
- Meinhardt Infrastructure and Environment Limited
- Hewson Consulting Limited

PROJECT LOCATION

Tseung Kwan O

TYPE OF WORK

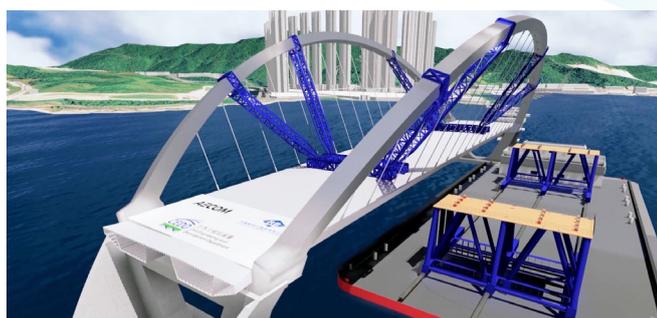
Newly built road and bridge

PROJECT TIMESCALE

JUL 2018 to JUN 2022

INTRODUCTION OF PROJECT

The Cross Bay Link in Tseung Kwan O consists of an about 1.8 kilometres long dual two-lane carriageway with cycle track and footpath, including an about 1.0-kilometre long marine viaduct across Junk Bay and an about 0.8-kilometre long Road D9, connecting Tseung Kwan O – Lam Tin Tunnel (currently under construction) and Wan Po Road in Area 86 of Tseung Kwan O. Upon completion, the Cross Bay Link project will relieve the traffic congestion within the Tseung Kwan O town centre and along Wan Po Road. The marine viaduct features a 200-metres long outwardly inclined butterfly arch bridge and a series of prestressed concrete box girders ranging from about 47m to 75m spans. The design concept of ‘Eternity Arch’, which symbolises the vibrancy coupled with infinite development potentials of Tseung Kwan O, was



Simulating the construction method of the steel arch bridge by BIM model

adopted. The aesthetic design of the main bridge is unique and elegant, which is in good harmony with the surrounding environment. The Cross Bay Link will become a new icon of Tseung Kwan O.

THREE WINNING FACTS

We are the first and only major bridge in Hong Kong adopting fully digitalised design with DfMA and prefabrication concept. The use of digitalised design process has enabled the project team to develop and implement DfMA and prefabrication concept with unrivalled effectiveness. Enhanced productivity, efficiency, safety and quality were accomplished as a result. Above all, the project was being delivered on schedule despite the impact of the COVID-19 pandemic all over the world.

Digital technology has been successfully implemented to enhance the overall performance throughout the construction process and among all parties involved. The project has adopted many digital tools such as the Big Data, Building Information Modelling (BIM), 3D Survey, the fifth-generation mobile network (5G), Cloud, Internet of Things (IoT), Robotics & Automation in the construction, and electronic site inspection system (E-SIS). By changing the mindset from traditional to digital, a better coordination and collaboration has been achieved among all stakeholders, which was proven to be fundamental for the successful delivery of the Cross Bay Link project.

We have achieved many “Firsts” in Hong Kong construction industry during the delivery of the project. It is the first time to use “Float-over” method to install the full span butterfly bridge of about 10,000 tonnes in weight; the first time to use full span lifting method to install prestressed concrete box girders (the heavier one is about 3,300 tonnes in weight and 75m long). All of these were achieved with minimal temporary works on site and significantly less amount of labour forces through the application of innovative technologies. This has reshaped the image of our construction industry by exhibiting the modern high technology and innovative sides of our professional activities, which will undoubtedly promote the Construction 2.0 of Hong Kong.



The current progress of the project - erection of all components of the main structures completed



Erection of the steel arch bridge by "Float-over" method



Erection of concrete box girder by full-span lifting method